

REQUEST FOR RECONSIDERATION

Claims 26 and 29-40 are active in the present application. Claims 1-25 and 27-28 are canceled claims.

In the Office Action of August 6, 2004 the Office rejected Claims 26-30, 33-35, 38 and 40 as anticipated in view of a patent to Konishi (U.S. 5,891,531). The Office asserts that Konishi teaches a device wherein a single crystal material is covered with a fluoride layer comprising the formula MO_xF_y (page 3 paragraph 3 of the Office Action of August 6, 2004). The Office cites to the disclosure “very little impurities, such as oxygen” in column 8 of Konishi as evidence that the claimed invention is anticipated.

Applicants traverse the rejection on the grounds that Konishi does not disclose a fluoride layer comprising a material of formula MO_xF_y where $0 < X < 2$ and $0 < Y \leq 4$. It appears that the Office is asserting that the presently claimed invention is anticipated by Konishi based on the Office’s interpretation of the disclosure “a highly pure transparent thin film of a fluoride containing very little impurities, such as ...oxygen...” inherently describes a material of formula MO_xF_y . Applicants submit that a film that contains both fluoride and oxygen is not necessarily a material of the formula MO_xF_y recited in present independent Claim 26. For example, a fluoride which contains a hydroxide (i.e., -OH) may be a hydroxide-containing fluoride which contains an oxygen-containing impurity. However, the formula of such a material may be, for example, $M(OH)_A F_B$. This oxygen-containing impurity-containing fluoride is not a material of formula MO_xF_y as recited in present independent Claim 26.

Applicants submit that the formula recited in independent Claim 26 must be a metal oxide fluoride. A material of formula MO_xF_y must have a metal oxide bond and a metal fluoride bond. The prior art “film of a fluoride containing very little impurities such as oxygen” does not necessarily have a metal oxide bond instead it may have, for example, a

metal hydroxide bond. Alternatively the oxygen impurities in the prior art film may not be bonded to any metal and may instead be molecular oxygen (e.g., O₂) adsorbed onto the surface of the prior art film.

It appears that the Office has taken official notice that a fluoride film containing oxygen impurities must necessarily contain a compound having a metal oxide bond and furthermore must conform to the formula MO_xF_y.

Applicants draw the Office's attention to *Durel Corp. v. Osram Sylvania Inc.*, 59 USPQ2d 1238 (CAFC 2001). In *Durel* a District court erroneously interpreted the term "oxide coating" as including coatings that contained only metal-hydroxide (e.g., Al(OH)₃) compounds. The Federal Circuit ruled that the District court erred in construing the term oxide as encompassing materials which may contain only metal hydroxide moieties. Applicants bring *Durel* to the Office's attention in the present case to demonstrate that an oxide and a hydroxide are different chemical entities and that one does not necessarily anticipate or suggest the other even though both oxides and hydroxides comprise an oxygen atom. The Federal Circuit's distinction between the terms oxide and hydroxide to differentiate and distinguish different types of oxygen-containing materials serves to evidence in the present case that "a fluoride containing very little impurities such as...oxygen..." is not necessarily a metal oxide material of formula MO_xF_y as recited in present independent Claim 26.

Furthermore, Applicants submit that nowhere in Konishi is a metal oxide fluoride of formula MO_xF_y disclosed either implicitly or inherently in the examples.¹ In the Amendment and Request for Reconsideration filed in this case on May 17, 2004, Applicants rebutted the Office's rejection in the Office Action of January 23, 2004 that the subject matter

¹ Konishi describes substrates that are described as, for example, calcium fluoride, fluoride glasses, oxide glasses, silicon, and magnesium oxide (column 10, lines 12-17), however the prior art substrate is not the fluoride layer.

of independent Claim 26 was anticipated by Konishi. Applicants pointed to the Examples of Konishi to demonstrate that the process of Konishi does not inherently provide a fluoride layer having a metal oxide of the formula MO_xF_y recited in present independent Claim 26. Inventive Example 1 of Konishi is analyzed by X-ray photoelectron spectroscopy and is demonstrated to be free of residual carbon or oxygen (column 11, lines 4-8). Konishi provides Example 2 as a showing of a fluoride film that contains carbon and/or oxygen impurities. The thin film of Example 2 of Konishi is shown to have an O-H stretching vibration (e.g., a hydroxide may be present) and is also shown to have a C=O stretching vibration (e.g., a carbonyl group may be present). The thin film also has a stretching vibration assigned to a C-F moiety which may represent organic substance impurities. Thus the fluoride film of Example 2 may contain oxygen in the form of hydroxide and/or carbonyl and CF organic residues, and may therefore have a formula of, for example, $M(OH)_A(C=O)_B(C-F_x)_C F_D$.

In the Response to Arguments section on page 8 of the Office Action of August 6, 2004, it appears that the Office is asserting that the presence of any amount of oxygen in any form in a fluoride film will serve to anticipate the invention of present independent Claim 26. As already noted above, a fluoride film containing oxygen is not necessarily a film containing a compound of formula MO_xF_y wherein oxygen and fluorine must be present.

An important distinction is therefore whether or not the impurity disclosed in Konishi is present as a metal oxide fluoride of formula MO_xF_y . Nowhere in Konishi is such a material explicitly disclosed. In the examples of Konishi when an oxygen impurity is present it is shown not to be a metal oxide but rather a hydroxide or carbonyl. Therefore there is no evidence of record that the impurity of Konishi may be of the formula MO_xF_y as recited in present independent Claim 26.

Moreover, the fluoride glasses of Konishi (e.g., fluoride films present on the surface of the prior art substrate) are nowhere disclosed to contain oxygen (see for example column 10, lines 18-25). To anticipate a claim, a reference must teach every element of the claim (MPEP § 2131.01). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros. v. Union Oil Co. of California 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

“The identical invention must be shown in as complete detail as contained in the...claim.”

Richardson v. Suzuki Motor Co., 9 USPQ2d 1931, 1920, (Fed. Cir. 1989).

Applicants submit that because Konishi does not disclose the metal oxyfluoride of formula MO_xF_y recited in present independent Claim 26, and because an oxygen impurity is not necessarily a metal oxide or a compound of formula MO_xF_y , Konishi does not disclose each and every element of the presently claimed invention and cannot anticipate present independent Claim 26 or any claim dependent therefrom.

Accordingly, the rejection of independent Claim 26 as anticipated by Konishi is not supportable and the rejection should be withdrawn.

The Office rejected Claims 36, 37 and 39, wherein the metal oxygen fluoride is of the formulas recited in the respective claims, as obvious in view of Konishi. It appears that the Office is asserting that because Konishi discloses “a fluoride containing very little impurities, such as...oxygen...” that a fluoride layer containing the metal oxyfluorides recited in dependent Claims 36, 37 and 39 is obvious. Applicants submit that Konishi nowhere describes the metal oxide materials recited in dependent Claims 36-37 and 39 (see discussion above). It appears that the Office has extended the teaching of “very little impurities, such as oxygen” in a manner that would inherently include metal oxides of any O:F stoichiometry.

Applicants submit that there is no evidence of record to support the assertion that the presence of “oxygen” in the prior art film provides a material of formula MO_xF_y . Applicants

further submit that the prior art disclosure of “very little impurities” may not suggest to those of skill in the art the presence of compounds having the defined O:F stoichiometries recited in the present dependent claims.

How can a compound of, for example, formula MOF, as recited in present dependent Claim 39, be obvious in view of a fluoride film containing oxygen in an amount characterized by the prior art as “very little impurities”?

In a compound of formula MOF there is a 1:1 stoichiometry of oxygen atoms to fluorine atoms. Such a chemical formula does not appear to be suggested by small amounts of impurities but instead discloses that equal amounts of oxygen and fluorine must be present and each must be bonded to a metal atom.

A film of formula MO_xF_y where X may be 0.25 or greater (see dependent Claim 36) indicates that substantial amounts of oxygen are present. Applicants submit that this amount of oxygen may be expected by those of ordinary skill in the art to be greater than an amount of oxygen described by the prior art as a “very little impurity.”

Applicants submit that the vapor deposition materials of dependent Claims 36-37 and 39 wherein the presence of metal oxyfluoride materials having substantial molar equivalence of oxygen per fluorine atom present are not obvious in view of prior art films that contain “very little...” oxygen.

The Office also appears to indicate that because Konishi discloses that oxygen may be present as an impurity it may be possible to optimize the impurity level in the process of Konishi to reach the claimed invention. Applicants note however that the process of Konishi is different than the process by which the claimed invention is produced. The metal fluoride of Konishi is formed by reacting a gas of fluoridation agent (e.g., a fluoride precursor) and a gas of a volatile organometallic compound to deposit a fluorinated material on a substrate. In contrast, the fluoride layer of the claimed invention may be obtained by reacting a

fluoridation agent with one or more types of metal oxides (page 7, lines 18-19). Therefore, in the process disclosed in the present application, oxygen is necessarily bonded with a metal atom during formation of the fluoride film whereas the Konishi process attempts to deposit a pure metal fluoride onto a substrate by the avoidance of compounds which contain a metal oxide bond.²

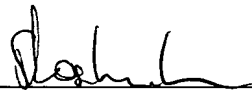
In summary, Applicants submit that the present invention is not anticipated by Konishi because (i) Konishi does not disclose a fluoride layer containing a material of formula MO_xF_y , (ii) the disclosure of "a little amount of impurities, such as oxygen" does not inherently disclose a material of formula MO_xF_y , and (iii) the examples of Konishi which provide evidence that when oxygen is present in the prior art film, its compositional characteristic is inconsistent with a material of formula MO_xF_y .

Applicants therefore submit the rejection of the present claims as anticipated or obvious in view of Konishi is not supportable and the rejection should be withdrawn.

The cancellation of Claims 27 and 28 renders the double-patenting rejection moot.

Respectfully submitted,

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² Applicants do not submit that the process of production is a limitation of the present claims or that the process of production is the only basis for distinguishing the claimed invention from the prior art. Applicants provide this information to point out that the process of Konishi is carried out in a manner to avoid incorporation of oxygen whereas the claimed film can be prepared in a manner that necessarily involves a metal oxide precursor.